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To know you is to love you: Effects of intergroup contact and knowledge on intergroup anxiety and prejudice
among Indigenous Chileans

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Abstract

Two surveys were conducted in Chile with Indigenous Mapuche participants (*N* study 1: 573; *N* study 2: 198). In line with previous theorising, it was predicted that intergroup contact with the Non-Indigenous majority reduces prejudice. It was expected that this effect would be due to contact leading to more knowledge about the outgroup, which would then lead to less intergroup anxiety. The two studies yielded converging support for these predictions.

There is considerable evidence that one of the most promising measures for reducing prejudice is intergroup contact (Pettigrew & Tropp, 2006). Research inspired by Allport's (1954) original formulation of the Contact Hypothesis confirms, by and large, that bringing members of different groups into contact usually has positive effects on their attitudes towards each other, particularly if certain conditions - such as institutional support for the contact, equal status contact, intergroup cooperation, and high acquaintance potential during contact - are met (see e.g., Eller, Abrams, & Zimmermann, 2011). Positive effects of contact have been demonstrated for a wide array of intergroup relationships – for example, relations between European and African Americans in the USA (e.g. Cook, 1978), inter-nation and inter-ethnic attitudes in Europe (Pettigrew, 1997), attitudes towards the elderly in the USA (Harwood, Hewstone, Paolini, & Voci, 2005), and Catholic-Protestant relations in Northern Ireland (Paolini, Hewstone, Cairns, & Voci, 2004). Integrating this research meta-analytically, Pettigrew and Tropp (2006) conclude that there is, indeed, a reliable positive effect of contact on intergroup attitudes.

Despite the impressive size of the literature, very few studies have investigated contact effects outside a North American or European context (for an exception, see Swart, Hewstone, Christ, & Voci, 2011). Remarkably little, if any, work has examined contact between indigenous and non-indigenous peoples. The strong reliance on Western (mainly white, middle class, student) participants in much of social psychological research obviously means that we still know very little about whether findings generated for that specific population can be generalised to other types of participants (i.e., to the majority of humanity). One group which has seldom been the focus of social psychological investigation are the indigenous Mapuche in Chile in South America. Indeed, a PsycINFO search (conducted 29.3.2015) for the search term 'Mapuche' yielded only 38 papers published in peer-reviewed, English

language journals. Hence, we would argue that this little studied minority group is an excellent choice to test the generalisability of the contact effect.

The Mapuche are Chile's biggest indigenous group. They have fought against invaders for over 300 years and were finally defeated only in the 1880s, which makes them the last people to be subjugated by the colonisers on the whole South American continent. Since then, they have suffered further infringements of their land rights, suppression of their culture, and from appalling health and education services. Mapuche unemployment and alcoholism rates are disproportionately higher than for other groups in Chile. According to the 2002 census, the Mapuche are still Chile's most deprived social group. In recent years, they have become increasingly vocal in their battle to improve their living conditions, sometimes culminating in violent clashes with the police and private security forces. The Chilean government has set up a body for the improvement of the Mapuche's situation (Ministerio de Planificación y Cooperación, 2003).

The Mapuche have facial features which are quite distinct from Non-Indigenous Chileans, they have a very recognisable traditional style of dress, and a distinct language and culture, both of which remain still very much alive in the countryside, whereas assimilation is further progressed in urban settings. There is a considerable level of ethnic segregation in terms of social networks in Chile (Bengoa, 2000). Mapuche are characterised – e.g. in school books – as brave and fearless warriors, a part of the founding myth of the Chilean nation. As such, they are a source of pride for Non-Indigenous Chileans on an abstract level. At the same time, the high unemployment and alcoholism rates among Mapuche make them a ready and frequent target of negative attitudes and emotions from Non-Indigenous Chileans. These ambivalent feelings of abstract glorification and concrete derogation co-exist within Chilean society (Saiz, 2002). This, then, is the intergroup context in which we aimed to test the whether intergroup contact would be associated with reduced prejudice.

Apart from testing the generalisability of the contact effect, another aim of this work was to investigate which variables might mediate the effect of contact on prejudice. We were interested especially in the roles played by 'knowledge' and 'intergroup anxiety'. As Stephan and Stephan (1984, 1985) have suggested, one might expect ignorance – i.e. a lack of knowledge - about outgroups to lead to prejudice. Stephan and Stephan proposed a model which incorporates contact, knowledge, anxiety, and outgroup attitudes. At the heart of the model is a hypothesised indirect effect of intergroup contact on prejudice reduction: Intergroup contact is proposed to decrease ignorance/ increase knowledge about the outgroup. Frequent and in-depth contact with outgroup members provides the potential to learn about the other's background, history, values, customs and traditions. This increased knowledge then helps to decrease intergroup anxiety, which is defined as a negative emotional state resulting from actual or anticipated contact with outgroup members (Stephan & Stephan, 1985). If there is ignorance of the outgroup's values, attitudes, and interactional norms, people are deprived of the usual cues about how to behave appropriately during encounters. A lack of these behavioural guidelines may create uncertainty and anxiety. This anxiety is experienced as frustrating and will lead to negative reactions toward its perceived source, i.e. the outgroup, since people will dislike – and be prejudiced against – others that make them anxious and ill at ease (Stephan & Stephan, 1984, 2000). Hence, the model proposes an indirect effect of contact on prejudice, mediated in two consecutive steps by knowledge and anxiety.

The idea that intergroup contact will increase knowledge about the outgroup and through this decrease anxiety is consistent with Pettigrew's (1998) emphasis on the importance of the concept 'learning about the outgroup'. It is also consistent with the idea that positive, non-superficial intergroup contact will be beneficial in terms of stereotype disconfirmation and stereotype change (Kenworthy, Turner, Hewstone, & Voci, 2005). It is further consistent with the more general idea that cognitions precede emotions (Weiner, 1993).

Of course, variables other than knowledge can be expected to influence intergroup anxiety and prejudice. For example, Stephan and Stephan (1984, 1985) also mention prior intergroup relations, other intergroup cognitions (e.g. assumed dissimilarity and stereotyping), and other situational variables. Nonetheless, we wanted to highlight ‘knowledge’ because of its promising potential for intervention design.

What, then, is the previous evidence for the effects of ‘knowledge’ and ‘anxiety’ on prejudice? Some early work conducted in the USA generated support for a positive correlation between knowledge about minorities and positive attitudes towards them for white majority participants (Nettler, 1946). Stephan and Stephan (1984) also found evidence for an indirect effect of contact with Chicanos on attitudes toward them among Anglo participants, mediated by knowledge of Chicano culture. However, overall findings for the effectiveness of knowledge in improving intergroup relations have been mixed (e.g. Bigler, 1999; Nagda, Chan-Woo, & Yaffa, 2004; Stephan & Stephan, 1984). Consequently, interest in this variable among researchers has dwindled, and studies have instead focussed on affective mediators of contact effects, such as anxiety.

Indeed, evidence for the importance of anxiety is much less equivocal. For example, Islam and Hewstone (1993) found evidence for an indirect effect of contact on intergroup attitudes among Hindus and Muslims in Bangladesh, mediated by intergroup anxiety. Paolini and colleagues (2004) also found anxiety to be an important mediator of the effect of cross-group friendships on intergroup prejudice in two cross-sectional studies among Catholic and Protestant respondents in Northern Ireland. Anxiety has also been found to mediate the effect of contact on outgroup attitudes in many other settings, indicating that it is, indeed, robustly implicated in the contact-attitude relationship (Britt, Bonecki, Vescio, Biernat, & Brown, 1996; Stephan, Diaz-Loving, & Duran, 2000; Stephan, Ybarra, Martinez, Schwarzwald, & Tur-Kaspa, 1998; Swart, Hewstone, Christ, & Voci, 2011).

In spite of the comparatively weaker effects found for knowledge, we propose that it will be of merit to test the effects of knowledge and anxiety jointly. To our knowledge, there has been little work which has considered cognitive and affective processes in conjunction, and a parsimonious test of Stephan and Stephan's model is still missing. One piece which did consider both cognitive and affective mediators found that, overall, anxiety has much stronger effects than knowledge (Pettigrew & Tropp, 2008). However, this work did not, as the present contribution does, consider if knowledge and anxiety effects are sequentially ordered, as suggested by Stephan and Stephan's model.

In sum, we tested whether contact is associated with better knowledge, which is then associated with reduced anxiety, which is then associated with lower levels of prejudice. In addition to the contact-knowledge-anxiety-prejudice sequence, in our modelling we also included a direct (negative) path from contact to anxiety, because of the strong effects found in previous research of contact on anxiety (e.g. Islam & Hewstone, 1993).

Study 1

Method

Participants

Five hundred seventy three Mapuche (231 male, 335 female, 7 unspecified) participated in the study. The majority (90%) were between 14 and 18 years of age, with 76% being between 15 and 17 years.

Procedure and Measures

Data were collected in the Chilean capital Santiago, to which substantial numbers of Mapuche have migrated, and in Temuco, a provincial capital several hundred kilometres further south, in an area in which the proportion of the Mapuche population is very large. Participants filled

out a questionnaire in Spanish during school class time, which contained the independent and dependent measures as translated below. The reason for focussing on school children was twofold. Firstly, this was a convenience method which enabled us to collect data from a relatively large sample without overextending our financial or time constraints. Secondly, young people are deemed a particularly important section of the population, as it is their attitudes which will shape intergroup relations of the future.

Contact. In common with several other studies which emphasise the importance of cross-group friendships (see Pettigrew, 1998; Turner, Hewstone, Voci, Paolini, & Christ, 2007), in this research we operationalised contact mainly in terms of the number of cross-group friendships. Of course, from Allport (1954) onwards we recognise that other indicators (e.g., the quality of contact, subjective importance) are also likely to be important determinants of intergroup attitudes (Pettigrew & Tropp, 2000). However, practical constraints prevented the inclusion of all these variables in this research. Further, real knowledge about the outgroup can be expected to be acquired through deep, meaningful friendship-type contact, but not through superficial acquaintances. There were four items: ‘How many Non-Indigenous friends do you have in school?’; ‘How many Non-Indigenous friends do you have outside of school?’; ‘How many of your Mapuche friends have Non-Indigenous friends?’; ‘Overall, how many Non-Indigenous people do you know?’; 0 = none/ little contact to 7 = much contact. One of the items measures vicarious rather than direct contact, i.e. contact that friends have (Wright, Aron, McLaughlin-Volpe, & Ropp, 1997); however because the item correlated well with the others, we combined all items into a single scale, $\alpha = .78$.

Intergroup knowledge. Knowledge was measured with four items: ‘In general, how much do you know about the Non-Indigenous?’; ‘In general, how much do you know about the Non-Indigenous’ ... history? ... language? ... values?’; 1 = very little knowledge to 7 = a lot of knowledge. The scale was reliable, $\alpha = .83$.

Intergroup anxiety. Anxiety was measured with four items: ‘Usually, when I deal with Non-Indigenous people, I feel ... tense; ...threatened; ...uncomfortable; ...nervous’; 1 = not at all/low anxiety to 7 = very much/high anxiety; $\alpha = .80$.

Prejudice. The scale consisted of 8 items: ‘What do you feel towards the Non-Indigenous in general? Do you feel ...envy?; ...jealousy?; ...anger?; ...resentment?; ...discomfort?; ...hatred?; ... despise them?; ...shame for them?’; 1 = not at all/low prejudice to 7 = very much/high prejudice; $\alpha = .84$.

We measured negative affect towards the outgroup as a proxy for prejudice because they have been shown to be particularly well-placed to reflect contact effects (Tropp & Pettigrew, 2004). Although we recognise that in the intergroup emotions literature quite often single item measures for different emotions are used, we felt that because all emotions were clearly negative and directed at the outgroup, it was justified to combine them into a single negative affective prejudice measure. The good reliability of the resulting scale validates this approach.

The anxiety measure included emotions that are synonyms of anxiety, or at least concepts which are strongly related to anxiety, and it focussed specifically on emotions felt during intergroup contact. In contrast, the prejudice measure included a larger range of more general negative emotions. Hence, they are conceptually different. This point was confirmed when submitting all anxiety and prejudice items to a factor analysis. An Eigenvalue greater than 1 was defined as extraction criterion, and Varimax was used to rotate the component matrix. Two factors were extracted. All anxiety items loaded on one factor (loadings from .75 to .79) but not the other factor (loadings from .11 to .19). In contrast, all prejudice items loaded on the other factor (loadings from .55 to .81) but not on the first factor (loadings from .08 to .20). This demonstrated that the measures were empirically as well as conceptually distinct from each other.

Participants also filled out a number of scales which are not of relevance in the present context. They also completed some items about demographic data, such as their age and sex. Full consent had been obtained prior to the study, and upon completion participants were thanked and thoroughly debriefed.

Results

The correlation matrix, variable means and standard deviations are displayed in table 1.

1. Hypothesised model. An SEM model (contact predicting knowledge, knowledge predicting anxiety, and anxiety predicting prejudice, including a direct contact-anxiety path; see Figure 1) was evaluated. It provided a good fit with the data, $\chi^2 (2) = 5.72, ns$; CFI = .98; GFI = .99; SRMR = .05, RMSEA = .06. It explained 17% of the variance in prejudice; and all individual paths were in line with the predictions. The indirect effects of contact and knowledge on prejudice were both significant at $p = .001$.¹

2. Alternative models. To see whether alternative models would be able to account for the data equally well, first, a model was specified which was identical to the one above, apart from the fact that the path from anxiety to prejudice was reversed. It might be the case that prejudice leads to increased intergroup anxiety, because people can be assumed to be more relaxed and less tense if they are around others they like, rather than around others they dislike strongly. However, this alternative model fitted the data considerably less well than our model of choice, $\chi^2 (2) = 20.19, p < .001$; CFI = .91; GFI = .98; SRMR = .07, RMSEA = .12. This does not only confirm that Stephan and Stephan's model provides a better account of the data, but it also constitutes some indication about the causal direction of effects, namely that, in line with the hypothesis, anxiety seems to influence prejudice rather than vice versa. Although causation can never be confirmed with certainty from correlational data, the pattern of result is at least in agreement with expectations.

Then, a model was specified whereby contact predicted anxiety and knowledge, which then both predicted prejudice. Again, this alternative model fitted the data considerably less well than our model of choice, $\chi^2(2) = 21.28, p < .001$; CFI = .90; GFI = .98; SRMR = .06, RMSEA = .14. This further confirms our hypothesis that the cognitive factor knowledge has an indirect effect on prejudice, channelled through the affective factor anxiety.

Finally, a model was specified which was exactly like the hypothesised model, except that the order of knowledge and anxiety was switched around. Now, contact directly impacted anxiety, which then impacted knowledge, which then impacted prejudice (a direct path from contact to knowledge was also included, in parallel to the process specified by the hypothesised model). This model clearly did not fit the data, $\chi^2(2) = 92.03, p < .001$; CFI = .55; RMSEA = .24. Again, this strongly suggests that, as hypothesised, contact has a positive effect on knowledge, which in turn affects affect, which in turn affects anxiety (rather than vice versa).

Discussion

Overall, some clear evidence was found in support of our hypothesis: Analyses yielded support for a model specifying a sequence of contact-knowledge-anxiety-prejudice. This model fitted the data better than the alternative models. We next sought to replicate these results to cross-validate them, and to test their generalisability across different geographic settings and intergroup climates.

Study 2

We conducted a second survey among an independent sample of Mapuche. The second study differed from the first in some important ways. First of all, this time data was *only* collected in Temuco in Chile's South, so participants in this study were from a much more rural rather

than urban setting than participants in the first study. Secondly, study 2 was conducted during a period of rather different political climate. When study 1 was conducted, the intergroup climate was somewhat hostile. There were conflicts between the Mapuche and Non-Indigenous groups regarding the building of a dam by a private company on indigenous land with religious meaning to them. There was also extensive media coverage of the trial of several Mapuche community leaders who were accused of arson attacks. By the time we conducted study 2, these disputes had dissipated, media coverage on the intergroup conflict had subsided, and intergroup relations were somewhat calmer. Hence, we endeavoured to replicate similar patterns as observed for study 1 in a different prevailing intergroup climate.

Method

Participants

There were 198 Mapuche participants (101 males, 97 females). The mean age was 15.5 years (range 14 - 19).

Procedure and Measures

Participants filled out a questionnaire in Spanish during school class time, which contained the independent and dependent measures as translated below. The questionnaires were identical to the questionnaire of study 1.

The alphas were as follows: *Contact* with the outgroup was $\alpha = .81$. *Knowledge about the outgroup* was $\alpha = .83$. *Intergroup anxiety* was $\alpha = .83$. *Prejudice* against Non-Indigenous people was $\alpha = .86$. Again, participants also filled out a number of scales which are not of relevance in the present context. They also completed some items about demographic data. Full consent had been obtained prior to the study, and upon completion participants were thanked and thoroughly debriefed.

Results

The correlation matrix, variable means and standard deviations are displayed in table 2.

1. *Hypothesised model.* Again, we tested a model where contact predicted knowledge, knowledge predicted anxiety, and anxiety predicted prejudice. Again, we also allowed for a direct path from contact to anxiety. This model fitted the data well, $\chi^2(2) = 3.34$, *ns*; CFI = .98; GFI = .99; SRMR = .06, RMSEA = .06. The model (see Figure 2) explained 19% of the variance in prejudice; and the standardised path values were significant and in the expected direction. The indirect effects of contact and knowledge on prejudice were both significant at $p < .05$.

2. *Alternative models.* As before, an alternative model was tested where the path from anxiety to prejudice was reversed. As before, this model fitted the data considerably less well than the preferred model, $\chi^2(2) = 8.68$, $p < .05$; CFI = .89; GFI = .97; SRMR = .08, RMSEA = .13. Again, this does not only confirm that Stephan and Stephan's model provides a better account of the data, but it also constitutes some support for the hypothesised causal direction of effects, namely that anxiety causally influences prejudice rather than vice versa.

Also as before, another alternative model was tested where contact predicted directly both anxiety and knowledge, which were both specified to predict prejudice. Again, this model fitted the data less well than the preferred model, although the difference in fit was not quite as dramatic as for study 1, $\chi^2(2) = 5.08$, $p < .08$; CFI = .95; GFI = .98; SRMR = .06, RMSEA = .09.

Finally, as in study 1 a model was specified which was exactly like the hypothesised model, except that the order of knowledge and anxiety was switched around (again, a direct path from contact to knowledge was also included). This model clearly did not fit the data, $\chi^2(2) = 34.75$, $p < .001$; CFI = .48; RMSEA = .29. Again, this strongly suggests that, as

hypothesised, contact has a positive effect on knowledge, which in turn affects affect, which in turn affects anxiety (rather than vice versa).

Discussion

Clear converging evidence in support of the hypothesis was yielded in the second study: Analyses yielded support for a model specifying a sequence of contact-knowledge-anxiety-prejudice. This model fitted the data better than the alternative models.

General Discussion

Taken together, the two studies yielded converging evidence for the proposed model across more urban and more rural settings, and in different intergroup climates. They are one of very few attempts to test contact effects outside a North American/European context, and therefore help to redress the bias toward Anglophone and Western settings (Pettigrew & Tropp, 2006). Furthermore, they stand out because they – in contrast to much previous work – assess the mediating functions of both cognitive and affective factors jointly, rather than to focus on just one or the other. Their results suggest that ‘knowledge’, which recently has been rather ignored by contact researchers, has significant indirect effects on prejudice, mediated by anxiety. Interestingly, study 1 suggested that rather than considering knowledge and anxiety as parallel mediators as proposed by Pettigrew and Tropp (2008), these variables might in fact be sequentially ordered, with knowledge affecting anxiety. However, study 2 data was less supportive of this sequence in favour over a parallel process, and more research would be useful to further disentangle these effects.

But, why is it important to highlight the effects of knowledge, when much of these effects on prejudice are channelled through anxiety, and therefore already indirectly accounted for in many previous studies which have incorporated anxiety? We would argue that

knowledge should nonetheless be investigated in its own right, because of the promising potential this factor has for interventions designed to improve intergroup relations. It will be much easier to teach people about the customs and values of an ethnic outgroup (which will then decrease intergroup anxiety) than to teach them directly to be less anxious during intergroup encounters. We believe – and our results support this – that the mixed results for the effectiveness of knowledge interventions found by previous work are *not* indicative of knowledge having weak effects. Instead, they might be due to methodological issues with the intervention evaluation, or due to sub-optimal designs of the specific interventions in question. It would mean to tip out the baby with the bath water if, because of these mixed previous results, we stopped considering knowledge as a useful lever to influence intergroup relations. We hope that the present work can help ‘knowledge’ to reappear on the radar of the research community.

Having said all this, some limitations of the present research should be acknowledged. First of all, these studies investigated self-perceived, rather than actual, knowledge. Although we assume that these two correspond to each other, more work would be needed to generate hard evidence of this. As it is, our measure of knowledge could simply tap into a ‘sense of familiarity’ which might be conceptually quite distinct from actual factual knowledge. More research would be useful to investigate this. Further, as already indicated above, of course variables other than knowledge and anxiety can be assumed to impact on intergroup relations. For example, ‘self-disclosure’ has been demonstrated to have strong effects (e.g. Turner, Hewstone, & Voci, 2007). It was beyond the scope of this contribution to consider all these, but would be interesting to consider them jointly with knowledge in the future, both in theoretical terms and in terms of intervention design.

What are other promising avenues for future research? Although comparing different SEMs on cross-sectional data can give some indication about the likely causal direction of

effects, more conclusive evidence would no doubt be yielded by longitudinal or experimental data. This is one obvious issue which could be addressed in future studies.

More research is needed to determine the conditions under which knowledge works. As mentioned above, sometimes knowledge interventions might not be found to be effective due to their specific design, or due to the design of the evaluation study. These are practical/implementation factors. However, there might also be theoretical factors which moderate the effects of knowledge, and which can explain why knowledge is effective in some settings but not others. So far, the mixed results for knowledge have unfortunately just led to a waning in interest in this variable, but not to theorising about such moderating factors.

To offer some initial suggestions, if majority members know more about minority members' culture, history, customs and so on, they can use their knowledge as a behavioural guideline, and will be less anxious in intergroup encounters. However, if there is a history of oppression, knowing more about the outgroup's history, self definition etc. can also lead to a realisation that the ingroup has victimised the outgroup in the past, and can be associated with feelings of guilt. These feelings of guilt, in turn, can be assumed to increase intergroup anxiety (Stephan & Stephan, 1985). In this situation, knowledge would have mixed effects on anxiety, and interventions would need to consider carefully which emotions are triggered by decreased ignorance, and which design would yield the optimal outcome.

However, even though most previous studies on knowledge have focussed on majority members, the present study actually focussed on indigenous minority members. The previous focus on majority members might be due to the fact that minority members can often be assumed to be more knowledgeable about the majority than *vice versa*. Nonetheless, we found clear evidence that knowledge must not be ignored for minority groups either. What, then, could be theoretical moderators of knowledge effects among minority groups? Conceivably, minority members benefit from increased knowledge particularly in settings where ethnic

groups live in a rather segregated way (i.e., where they had little prior opportunity to acquire knowledge), or where the cultural differences are particularly large. In order to know whether this is the case, research would have to be conducted with minority members in settings other than the Chilean one. After all, as Bigler (1999) points out, we require more sophisticated theoretical models on which to base our interventions if we want these to be successful.

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Footnote

1. Additional analyses confirmed that this pattern of results did not differ substantially between the samples from Temuco and Chile.

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Table 1

Study 1: Bivariate correlations and variable means

	Contact	Knowledge	Anxiety	Prejudice
Knowledge	.32 ***			
Anxiety	-.17 ***	-.23 ***		
Prejudice	-.10 *	-.19 ***	.41 ***	
Variable means	5.88	4.89	2.29	2.36
SD	1.52	1.53	1.32	1.27

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. SD = standard deviation

Table 2

Study 2: Bivariate correlations and variable means

	Contact	Knowledge	Anxiety	Prejudice
Knowledge	.34 ***			
Anxiety	-.18 ***	-.21 ***		
Prejudice	-.14 **	-.26 ***	.38 ***	
Variable means	5.81	4.85	2.36	2.55
SD	1.52	1.50	1.31	1.23

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. SD = standard deviation

Figure Captions

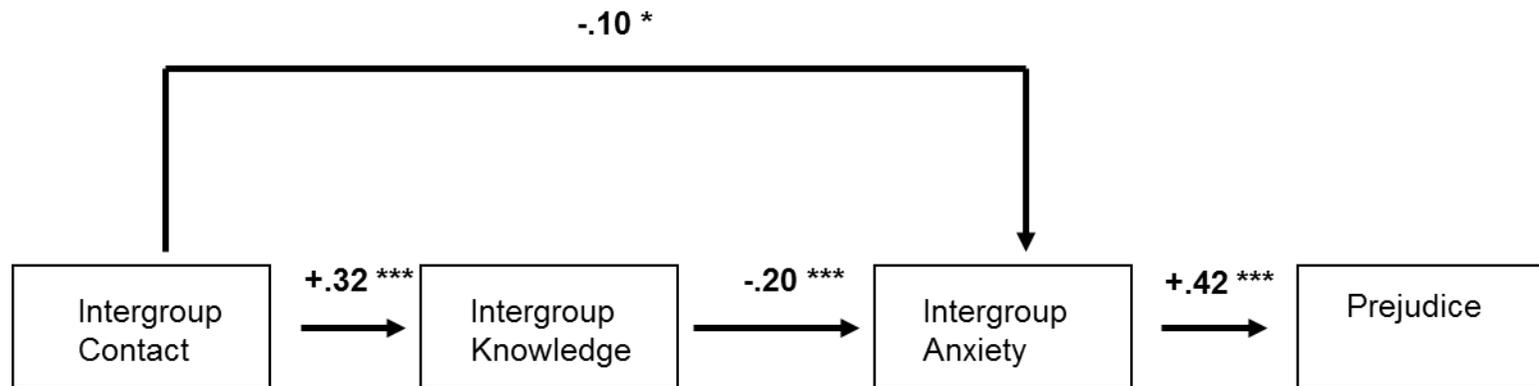
Figure 1

Study 1: Effects of intergroup contact, knowledge, and anxiety on prejudice

Figure 2

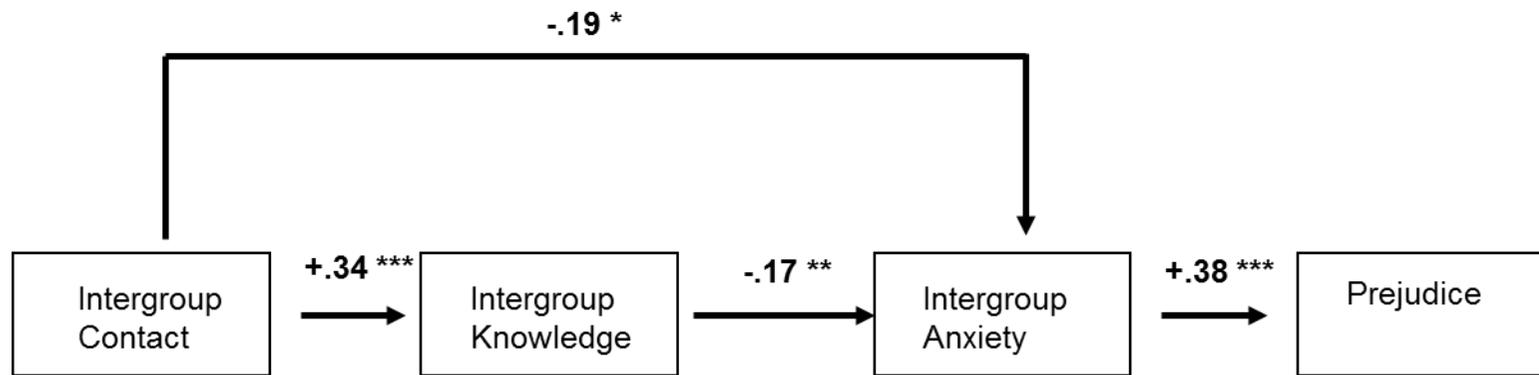
Study 2: Effects of intergroup contact, knowledge, and anxiety on prejudice

Figure 1



Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 2



Note. * $p < .05$, ** $p < .01$, *** $p < .001$.